

CLAIMS

1. A motor coil-shortening detecting unit, comprising:
a motor including a rotor having a wire wrapped around
said motor;

a commutator provided on the rotor;

a brush that slides over the commutator, electric power
being supplied to the rotor from an external power source
via the commutator and brush to rotate the rotor;

a detecting means that detects a current or a voltage
supplied to the motor from a power source;

a determining means that determines a short of the
motor coils by comparing the detected voltage or current
obtained by the detecting means with a respective pre-stored
voltage or current, said pre-stored voltage or current
representative of that supplied from the external power
source during a normal state.

2. The motor coil-shortening detecting unit according
to claim 1, wherein:

the determining means makes determines the short based
on ripple variations of the current or voltage supplied to
the motor from the external power source, the ripple
variations being detected by the detecting means.

3. The motor coil-shortening detecting unit according
to any one of claims 1, 2, wherein:

the determining means includes a temperature correction circuit for correcting the pre-stored current or voltage according to a circumferential temperature.

4. The motor coil-shortening detecting unit according to any one of claims 1 - 3, further comprising:

an abnormality informing means for informing a user when the short is determined by the determining means.

5. The motor coil-shortening detecting unit according to any one of claims 1 - 4, further comprising:

a stop control means for stopping power supply to the motor when the short is determined by the determining means.

6. A motor coil-shortening detecting unit, comprising:
a motor including a plurality of coils;
a commutator provided on the rotor that electrically communicates with the coils;

a brush that slides over the commutator, electric power being supplied from an external power source to the coils via the commutator and brush to rotate the rotor;

a current detector that detects a current supplied to the coils from the power source;

a determining device that compares the detected current with a pre-stored current, said pre-stored current representative of a current supplied by said power source and used by said motor when no short exists; and

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an indication device responsive to said determining device that indicates when said short exists.

7. A method for determining a short in a motor coil of a motor supplied from a power source, said method comprising the steps of:

detecting a current supplied to the motor coil;

comparing the detected current with a pre-stored current, said pre-stored current representative of a current supplied to said motor coil when no short of said motor coils exists; and

determining whether a short exists based on said comparing step.

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